DOCUMENT RESUME

ED 269 237 SE 046 551

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TITLE Honeybees.
INSTITUTION Ida Cason Calloway Foundation, Inc., Pine Mountain, GA.
PUB DATE 86
NOTE 7p.
PUB TYPE Guides - Classroom Use - Materials (For Learner) (051) -- Collected Works - Serials (022)
JOURNAL CIT Nature Naturally; v9 n3 Spr 1986

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Animal Behavior; *Biology; Ecology; Elementary Education; *Elementary School Science; *Entomology; Resource Materials; Science Education; *Science Instruction
IDENTIFIERS *Bees; *Insects

ABSTRACT

The life patterns, behaviors, and functions of the social insects, the honeybees, are presented in this publication. Illustrations and information are offered on the topic areas of: (1) the honeybee society (explaining the jobs of the queen, worker, and drone bees); (2) the hive (describing how the hive is constructed, how new bees develop, and how honey is made); (3) flowers and honeybees (highlighting the process of pollination); (4) beekeeping (discussing the popularity and products of this hobby); and (5) funfacts (describing bee navigation, temperature regulation, use of beeswax and a recipe for a honey-based snack). (ML)

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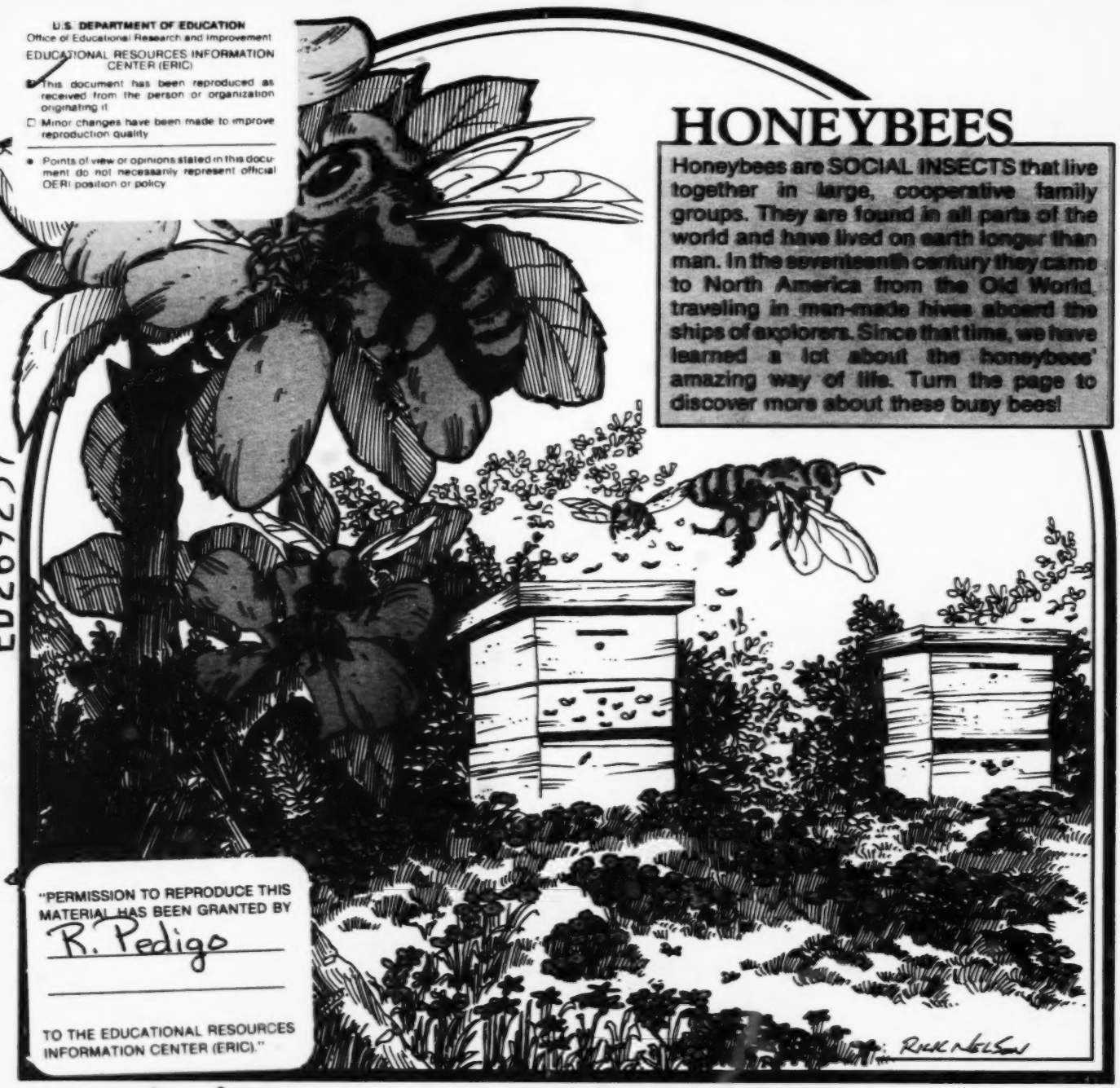
HONEYBEES

Honeybees are SOCIAL INSECTS that live together in large, cooperative family groups. They are found in all parts of the world and have lived on earth longer than man. In the seventeenth century they came to North America from the Old World, traveling in man-made hives aboard the ships of explorers. Since that time, we have learned a lot about the honeybees' amazing way of life. Turn the page to discover more about these busy bees!



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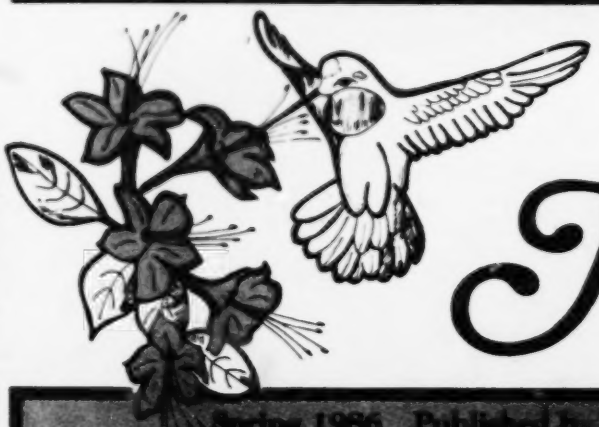
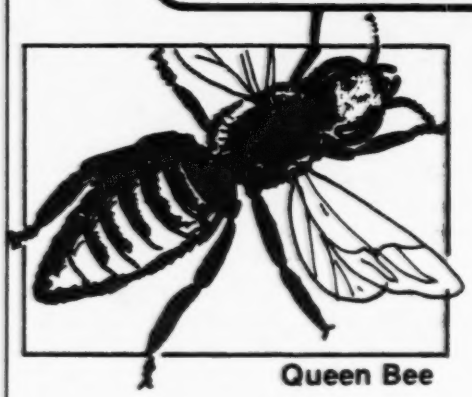


Nature Naturally

Spring 1986 Published by the Ida Green Calloway Foundation Vol. 9, No. 3

HONEYBEE SOCIETY



Queen Bee

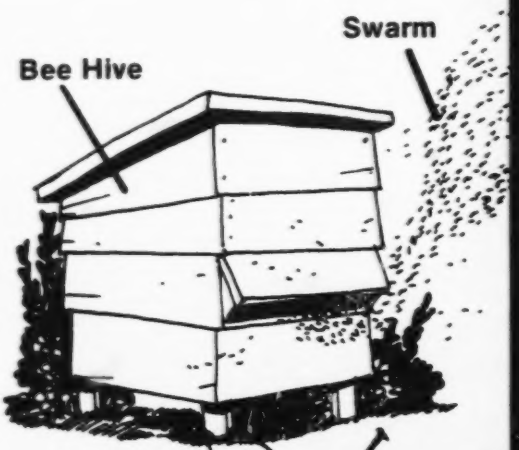
Honeybees live in large family groups called COLONIES inside their home, or HIVE. Sometimes as many as 80,000 bees live together! With such a large household the hive has to be a very organized place. Each bee has certain rules to follow and special jobs to perform.

There are three different kinds of honeybees in a hive: a QUEEN BEE, the WORKER BEES, and the DRONE BEES. Let's take a close look at the jobs for which each type of bee is responsible.

THE QUEEN BEE

In each hive there is one queen bee. She is larger than the workers, longer than the drones, and has a long abdomen which looks somewhat wasp-like. A queen bee may live 3 to 6 years — much longer than the other bees in the hive. Her only responsibility is to lay eggs. The eggs will grow into adult bees that will live and work in the hive. The queen is fed and kept clean by worker bees. She spends most of her time moving around the hive, laying an egg in every empty cell she can find. A healthy queen may lay 1,500-2,000 eggs a day: nearly one a minute!

If the honeybee hive gets too crowded, the queen will lay special eggs in large cells which will produce new, young queens. The first young queen to develop will take over the rule of the hive. The old queen will fly away taking a SWARM (large number) of bees with her. They will find a suitable place to build another hive and form a new colony.

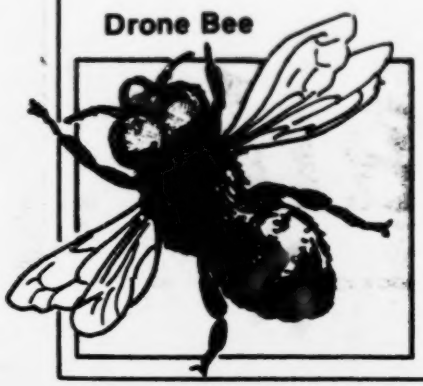


THE WORKER BEES

Worker bees are female bees that do not lay eggs. As their name suggests, workers do almost all of the work around the hive. They live only a short time — four to five weeks during the summer. During their brief life, worker bees perform a sequence of different jobs for the hive. Their first jobs include cleaning the hive, feeding bee larvae, and taking care of the queen. Later they are busy building new honeycombs and guarding the hive's entrance. The worker bees' final job is to collect nectar and pollen for the hive colony.

Worker Bee

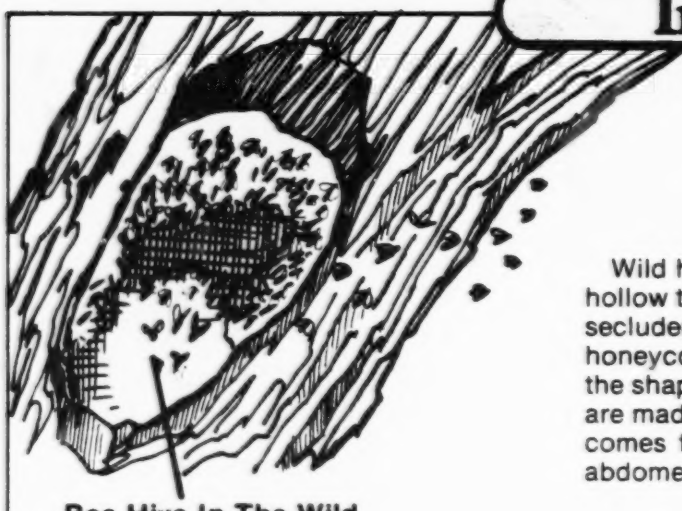
Drone Bee



THE DRONE BEES

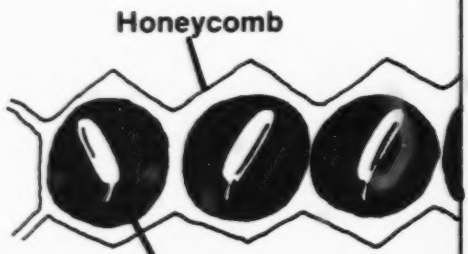
Drones are male bees that don't do any work around the hive or gather food. Their job is to mate with the queen bee so that she can lay fertilized eggs which will produce more bees. Drones rarely leave the hive and do not have stingers with which to defend themselves. When the winter food supply gets low, worker bees will push the defenseless drones out of the hive and into the cold to die!

Inside The Hive



Bee Hive In The Wild

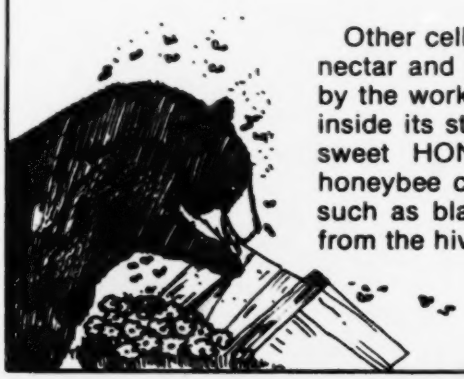
Wild honeybees build their hives inside hollow tree trunks, holes in walls, or other secluded places. The bees construct oval honeycombs that hang vertically and fit the shape of their dark cavity. These nests are made entirely of wax, or COMB, which comes from beneath plates on the bees' abdomens.



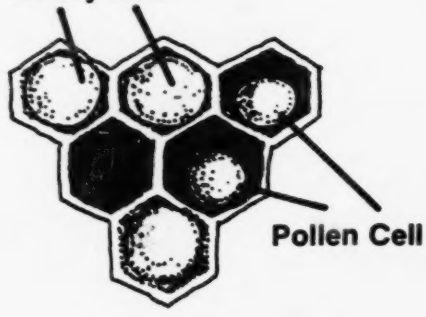
The wax is chewed and shaped into hexagonal (six-sided) rooms called CELLS by the worker bees. Each oval of comb has rows of these tiny cells that fit together.

Some cells of the hive will contain eggs laid by the queen bee. Within its own cell each egg will hatch into a wormlike LARVA, which is fed honey and pollen by the worker bees. Then each cell is covered with a wax lid, and the larva inside changes first to a PUPA and then, gradually, to a BEE. The new, full-grown honeybee chews the wax lid off of its cell and joins the life of the colony.

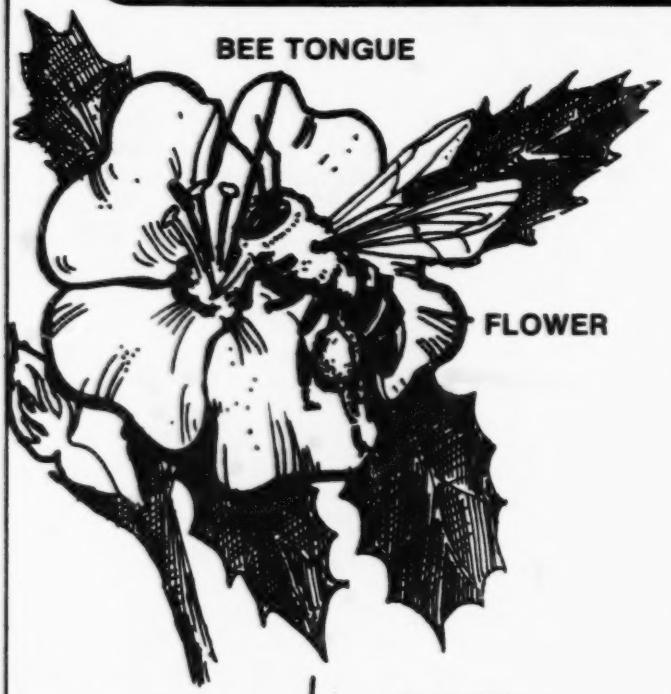
Young Bee Biting Through The Wax



Other cells in the hive are used to store nectar and pollen gathered from flowers by the worker bees. As the nectar ripens inside its storage cell, it turns into thick, sweet HONEY. This is food for the honeybee colony, as well as for animals such as black bears that will rob honey from the hive!

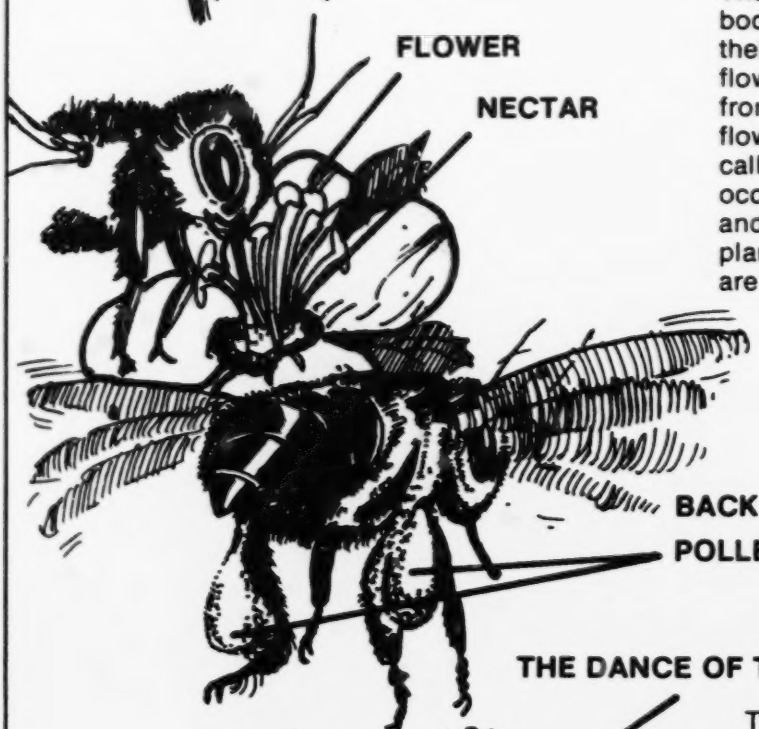


The Flower and the Honeybee



Wherever there are flowers you will probably see honeybees. Do you know why? Honeybees get their food from flowers. Many kinds of flowers produce a sugar water inside them called NECTAR. Honeybees gather the nectar with their long tongues and store it in a special stomach called the "crop" until they return to the hive.

While gathering nectar from flowers, honeybees also collect POLLEN, the fine, yellow powder in the center of the flower. The bees collect pollen on their furry bodies and in special pollen "baskets" on their back legs. As they fly to different flowers, some of the pollen they collect from one flower will rub off on the next flower they visit. This transfer of pollen is called POLLINATION. Pollination has to occur before a flower can produce seeds, and seeds are needed to produce new plants. Almost 100 fruits and vegetables are dependent on honeybee pollination.



BACK VIEW OF A BEE SHOWING POLLEN BASKETS ON ITS HIND LEGS

THE DANCE OF THE HONEYBEE

The honeybee performs a dance to tell the other bees of a source of food. She may buzz and wag her body and fly in a figure-eight circle to motion the direction and the distance to travel. The other bees smell the pollen and taste the nectar she carries and soon fly out to the flowers.

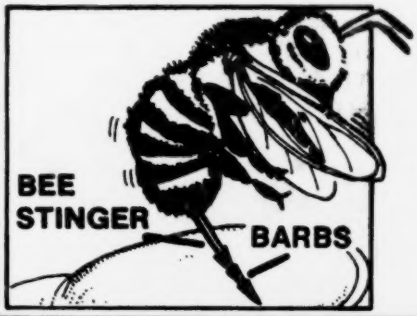
BEEKEEPING

Bee Hive

People centuries ago learned they could raise colonies of bees in man-made hives. Beekeepers always had a supply of honey to eat, as well as bees to pollinate flowering plants. Beekeeping today is a popular hobby throughout the world. A beekeeper is called an APIARIST (ā' pi-e-rist) and a collection of hives is an APIARY (ā'pi-er i), from the Latin word **apis,** which means "bee."

Modern hives are wooden boxes with moveable FRAMES, or sections. Thousands of bees build combs inside the frames and fill them with nectar and pollen. One large hive may produce 50 pounds (25 kg.) of honey each year. The yearly world production of honey is almost 600,000 tons. Beekeepers harvest the honey and sell it to many buyers, including us!

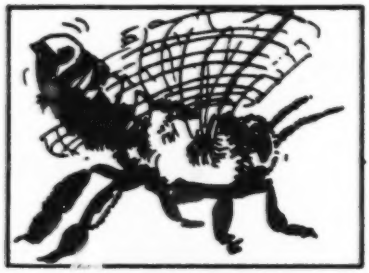
Would you like to begin the hobby of beekeeping? For further information write to Georgia's state organization: Georgia Beekeepers, Louise Passmore, Treasurer, P.O. Box 196, Hahira, GA, 31632. You can also contact your State Department of Agriculture for lists of beekeeping publications.



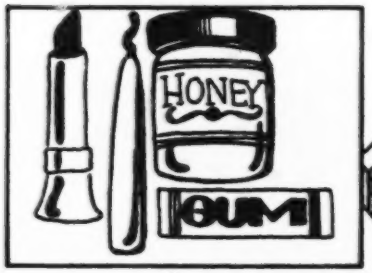
OUCH — IT STUNG ME! Most of us have been stung by a bee at one time or another. Both workers and queen bees have stingers which they use for defense. The stinger has barbs, like a fish hook, which hold it in the skin it pierces. A sting gland sends poison down the stinger and into the skin causing pain. Once a honeybee stings, it flies off to die, leaving stinger and poison gland behind. The best remedy is to scrape away the stinger and apply a soothing lotion to the injured spot.

FUNFACTS

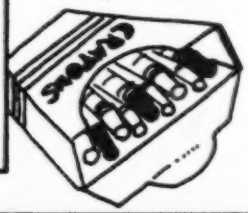
WHICH WAY IS HOME? Honeybees use the sun as a compass, and know how far to the left or right of the sun they must fly. When close to the hive, they can recognize landmarks such as trees and make a "beeline" for home!

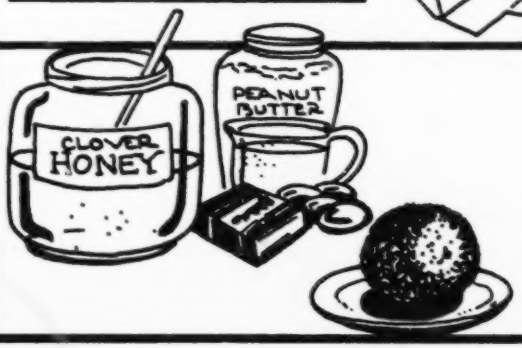


NATURAL HEATING AND COOLING: In winter honeybees cluster in the center of their wax house. They eat honey continuously to generate heat for the hive. In the heat of summer worker bees fan their wings quickly to set up cooling air currents.



BEESWAX from honeycombs is used to make chewing gum, lipsticks, and crayons. Because it burns slowly and has a pleasant smell, it is also formed into pure beeswax candles.





Make A Yummy Honey Treat

Ingredients

½ cup honey
½ cup peanut butter
¾ cup powdered milk
Optional: add ½ cup raisins, nuts, sunflower seeds or coconut

Directions

Mix ingredients well; roll into balls and coat with wheat germ, granola, or coconut.

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This is a free publication of the Education Department of the Ida Cason Callaway Foundation, the non-profit educational, religious, and charitable organization which owns and operates Callaway Gardens. It is published three times a year for school children, grades 4-6, in the southeast. The purpose of the newsletter is to enhance children's appreciation of ecology and conservation. Teachers may receive this publication by sending their name, school mailing address, and number of students to NATURE NATURALLY.

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